(Copy.)

To the Society for the Encouragement of Arts, Manufactures, &c. &c.

GENTLEMEN,

I respectfully apologize for further obtruding myself on your attention: but, as I understand that Mr. Malam's application to be rewarded for *his stated invention and improvement* in the Gas Meter has been again referred to a Committee; and, as I am further satisfied that you have been greatly deceived in respect to the merits of Mr. Malam on the subject in question, I consider it a duty I owe to myself and to your Society to give you every information in my power, to enable you to come to the most correct judgment before your final resolution.

In giving you this information, I shall take the liberty to state to you, with dates, a brief outline of the several inventions I have made in Gas Apparatus; from which statement, those, in the least acquainted with the subject, will perceive how large a portion of my plans are now in use with the Public without any profit to myself.

In the year 1805, I lighted with gas a cotton mill in Yorkshire: this being the first mill thus lit in the kingdom.* In 1809, I had the honor to receive from your Society a medal for a drawing of a Gas Apparatus.

In 1810, I invented the *Lime Machine* for absorbing the sulphurated hydrogen from the coal gas; which machine I first used in lighting Stoneyhurst College in Lancashire, and this machine is now in *general use*.

In 1811, I invented the mode of insulating the Retorts from each other, by what are called the Hydraulic Pipes: this contrivance I first applied in lighting a cotton manufactory in

* It is generally supposed that the Mill of Messrs. Phillips and Lee, of Manchester, was first lit by Mr. Murdock, but this is erroneous.

Manchester, and it is now used in every Gas Light Establishment known to me.

In the same year I invented the mechanism for regulating the specific gravity of the Gasometer by means of a chain, also the twelve inches Cylindrical Retorts, together with the method of making the mouth-pieces: these Retorts are now *used by the chartered Gas Light Company.*

In 1813, I was engaged for four years certain as the engineer to the said chartered Gas Light Company, and constructed their large apparatus for lighting London,—the *first city ever lit with Gas.** During the whole of the four years spent with the Gas Light Company, several improvements in practice suggested themselves to me; but my mind was invariably bent upon discovering what before had not even been suggested by others, viz. a mode of *measuring the Gas used by the consumer.* This object was attained in the invention of the Gas Meter. And, as I had witnessed many others of my former inventions, as well in Gas Apparatus, as in other machinery not only copied, as soon as seen, but even claimed by others as their own, I was induced to take out a patent for this Gas Meter in the year 1815, an Extract of the Specification of which I have annexed; and I beg leave to direct your particular and critical perusal of it.

I earnestly request that you will examine my Gas Meter as now used, and the Gas Meter Mr. Malam *pretends* to have invented; and the comparison of the two with reference to the specification, will, I am satisfied, decide the question with any impartial mind, that Mr. M.'s *pretended invention* is a gross and palpable encroachment on *my invention.* This comparison of the two, with reference to the specification, will, I contend, prove the plagiary of Mr. Malam, without reference to any other circumstances connected with the question. But what must be the impression on the mind of any indifferent person, when he is informed that this said Mr. M. *was under me employed as Foreman to the Works* where these Meters were originally manufactured, and had, of course, every opportunity

* I have since lit His Majesty's Mint, the town of Birmingham, together with the cities of Bristol and Chester.

of informing himself fully of their structure? From the time of my first projecting this Meter to the time of my quitting the service of the Company, my attention was greatly taken up in constructing various other works for the Company's use.—When I quitted the Company's service in 1817, it cannot be any matter of wonder, that all remaining in the service after benefitting themselves to the full extent from my experience, should be prone to disparage *me*, with a view to *raise themselves*, in the esteem of the Directors, in order to fill my vacated place. This was precisely the fact. Not a man pretended to have any knowledge of Gas lighting when I joined the Company. But after remaining four years, and lighting, as is well known to the Public, a great part of the cities of London and Westminster; all under me became, in their own esteem, perfect engineers, and amongst the rest was the said Mr. Malam.

Gentlemen,—I have stated thus much in the hopes of calling your attention to a candid revision of the subject. The invention I pride myself in, as being entirely new—The merit of the invention consists solely in the discovery of the *Principle*, which has, I contend, been palpably copied from me by Mr. M———. Mr. M. has produced to you one of my *first efforts in its crude state*, and directed you to a comparison with one of *his*, *more neat in formation*.

His Meter is a *mere deviation*, in form, from mine, and such a deviation as would suggest itself to the most ordinary mind. But all that he has done, had been effected by myself and acted upon long before. I have, moreover, made an improvement in in it, which he does not appear to be conscious of, with all the advantages he has derived from me; for I am prepared to shew you, that the present Meter offered to you by Mr. M. as his *invention and improvement*, *is not calculated to* answer the purpose intended. The comparison of his with one of my earliest efforts is I think unfair. The evidence he produces, to shew to you his superiority over me, is given by the tradesmen, and present officers of the Chartered Gas Light Company, who have every disposition to cry me down, and on my downfall to raise themselves. Before I joined the Company I had

spent thousands of pounds of my own property in maturing my plans for Gas-Lighting. During my service with that Company I was an efficient officer. On my leaving the Company my knowledge of the subject and my exertions in life constituted my sole estate. In taking out my patent I did not act on the principle of an adventurer, wishing to make property on the exertions of another, I was myself the original discoverer of a new principle. The formation of the instrument embodying this principle, like every other new invention, was capable of being improved by practice. I *have* improved it, and I verily believe it to be the only correct Meter now in use.

The object of the Legistature, in granting patents, was I humbly conceive to encourage the invention of works calculated to improve the interests of the country, by affording to the Inventor, for a limited period, the exclusive sale of such works, as a recompence for the time and money expended in bringing his invention into a state for use. To such protection I consider myself justly entitled—my specification is such as cannot I think be misconstrued, and my duty as a husband and a father, calls upon me to protect my rights.

If on a very slight deviation in the structure of a machine, the principle is to be usurped by another with impunity, patents become at once a dead letter and useless.

As I am now engaged in lighting the city of Worcester and obliged to be there this week, I cannot have an opportunity of waiting upon your Committee but my partner Mr. Crosley will be in attendance provided with the Meter as now used, and prepared to answer any questions you may think proper to propose to him, and of the whole I have herein stated I pledge myself for the truth.

I am,
Gentlemen,
Your most obedient Servant,
(Signed) SAMUEL CLEGG.

Maxby-Place, South Lambeth,
15*th April*, 1819.

EXTRACT

FROM

SAMUEL CLEGG'S

SPECIFICATION OF AN IMPROVED GAS APPARATUS,

Dated Dec. 9, 1815,

As respects the General Description of the Gas-Meter.

"A GUAGE or rotative gas-meter for measuring out and registering the quantity of gas which passes through a pipe or opening, so as to ascertain the quantity consumed by any certain number of lights or burners. This guage consists of a hollow wheel or drum, capable of revolving vertically upon pivots, in the manner of a water-wheel: the hollow rim of the wheel is made close on all sides, to form a circular channel, which is divided by partitions into certain compartments or chambers to contain the gas, which is introduced into the wheel through one end of its axis, and carried off from the wheel through the other end.

By certain contrivances it is so arranged, that each of these boxes or chambers will be filled with gas from the entrance pipe, and emptied of the same into the exit pipe, every time the wheel makes a revolution, by which means the number of turns the wheel makes (when registered by suitable wheel-work) become a record of the quantity or number of boxes full of gass which has passed through the guage. The gas is conducted from the place whence it is supplied, and enters into the guage through one end of its axis, and is conveyed into the chambers of the rim by certain hollow arms. The gas returns from the said chambers by certain other hollow arms,

and is conveyed away through the opposite end of the axis of the wheel by the pipe which leads to the burners or place where the gas is consumed. No gas can pass from the pipe of entrance, at one end of the axis, and get to the pipe of exit at the other end of the axis, without entering into and filling the said chambers. A sufficient quantity of water is put into the hollow rim of the wheel, to fill a segment of the rim, rather larger in its capacity than one of the compartments into which it is divided; and there are passages of communication between the chambers through which this water can pass from one chamber into the next, but the gas cannot pass. It is evident, that the water from its gravity will always fill a segment in the lowest part of the wheel; and when the same turns round, the water will occupy each of the chambers in succession as they arrive at, and during the time that each one continues at the lowest part of the wheel. The pipes or hollow arms which convey the gas to the chambers are so contrived, that when the entrance pipe to any one chamber is open to admit the gas, the exit pipe from the same chamber will be shut or sealed up, and *vice versâ;* and this opening and shutting of the passage into and out of any one chamber takes place at that period of the revolution of the wheel when the water in the lower part thereof is on the point of entering into or going out from the said chambers; that is to say, when the water at the lower part of the wheel is on the point of quitting any chamber, the pipe of entry shall be open to admit the gas into the said chamber, which gas expels the water from it through the passage of communication into the adjacent chamber, until the first-mentioned chamber becomes filled with gas, and the second-mentioned chamber becomes filled with water; at the same time the pipe of exit from the second-mentioned chamber is opened, and the water which enters from the first mentioned chamber displaces the gas, and it passes off through the exit pipe.

The machinery for counting and registering the number of

revolutions made by the wheel may be constructed in any of the ways usually employed for similar purposes.

It is not essential to this guage that the exit pipe from the chambers be conveyed through the axis, the same effects may be obtained by enclosing the whole wheel within a close vessel or case, in which it can revolve freely, and allowing the gas to escape into the case from the chambers when the same are to be discharged; from this case the gas can be carried of by the exit pipe. The means of opening or shutting the passages of communication may be varied; it may be done either by valves or by sealing the pipes with water or other fluid."

A comparison of the annexed Diagrams and Sections, with the Specification, will shew Mr. Malam's infringement on Mr. Clegg's Patent; at the same time shew that the most essential alteration was first adopted by Mr. Clegg.

For the more clearly shewng the semblance of Mr. Malam's pretendid Invention, the inlet and outlet apertures are marked with the same letters in all the different figures, viz. the apertures by which the Gas is conducted into the several Chambers of the wheel are marked by the letters A and B; and those by which it is discharged from said chambers into the case, are marked C; and the Periods when each figure was first used, are stated opposite to the same, excepting the one presented to the Society.

Fig. 1.

Copy of an engraving in Mr. Clegg's Specification, enrolled in 1816.

Fig. 2.

Manufactured by Mr. Clegg in April, 1817; the chamber of supply *within* the wheel, and the Gas conducted therein by a hollow axis.

This form of wheel, with bent inlet tube and safety valve, was made by Clegg & Crosley, in July 1817.

Fig. 3.

Manufactured by Mr. Malam, at Peter-Street Gas Works, in April 1817. *Piece abandoned*

Fig. 4.

Mr. Malam's model, presented to the Society of Arts, April 1819, adopting the chamber of supply within the wheel, as used by Mr. Clegg, in April 1817, varying the inlet and outlet appertures by curved partitions, without any advantage to the Meter; but this Meter does not protect the Sellers of Gas against fraud or accident, it must, therefore, be unfit for Public use.

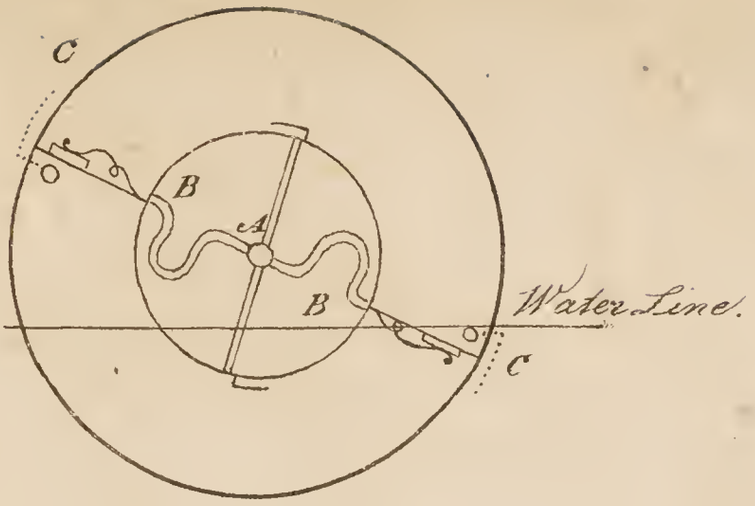

Fig. 1.

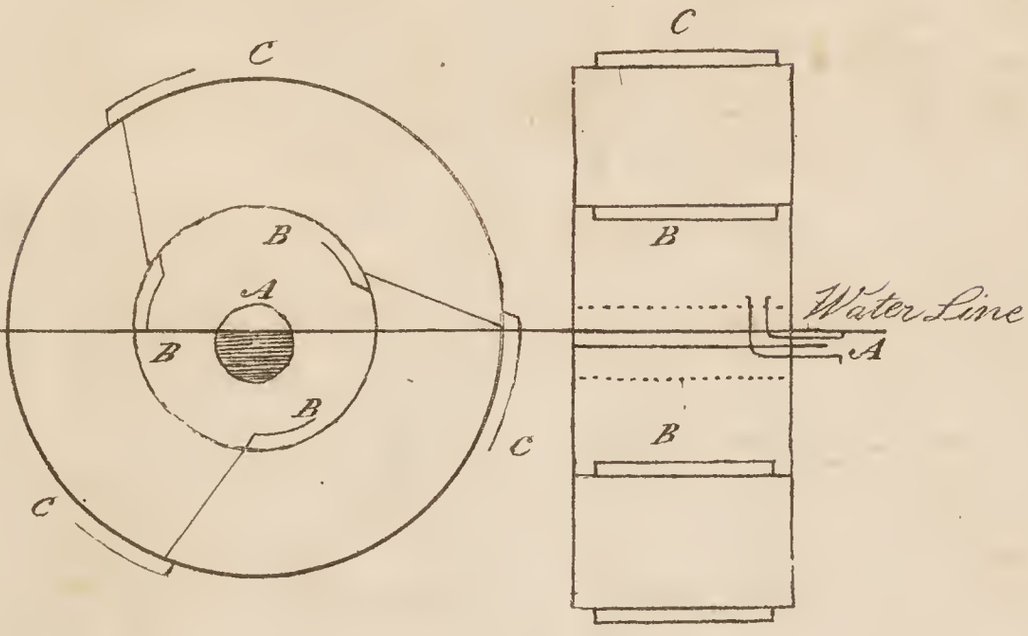

Fig. 2.

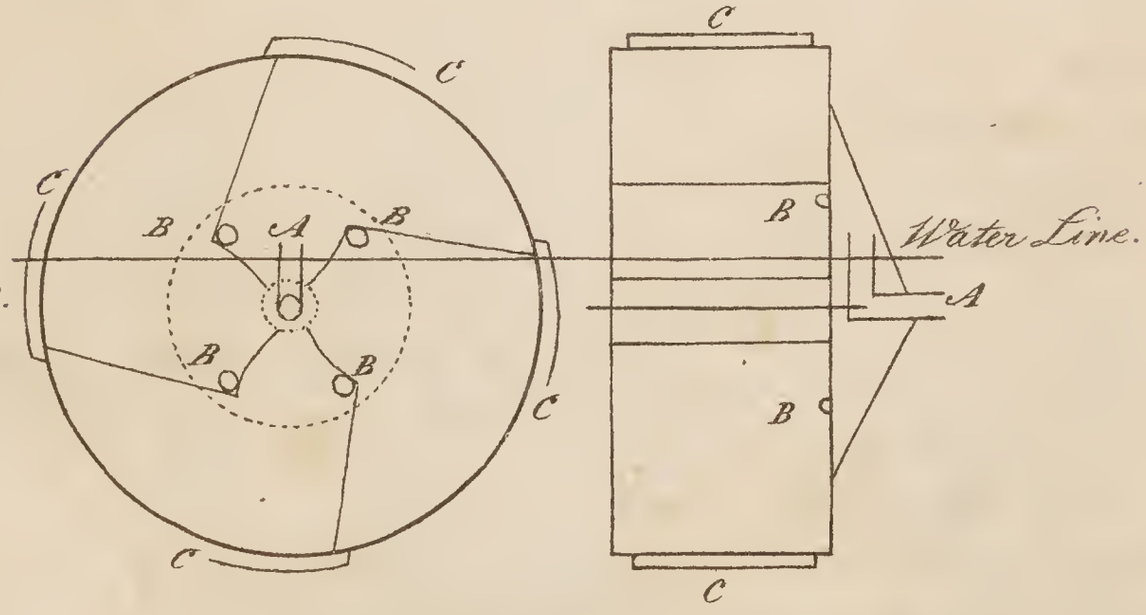

Fig. 3.

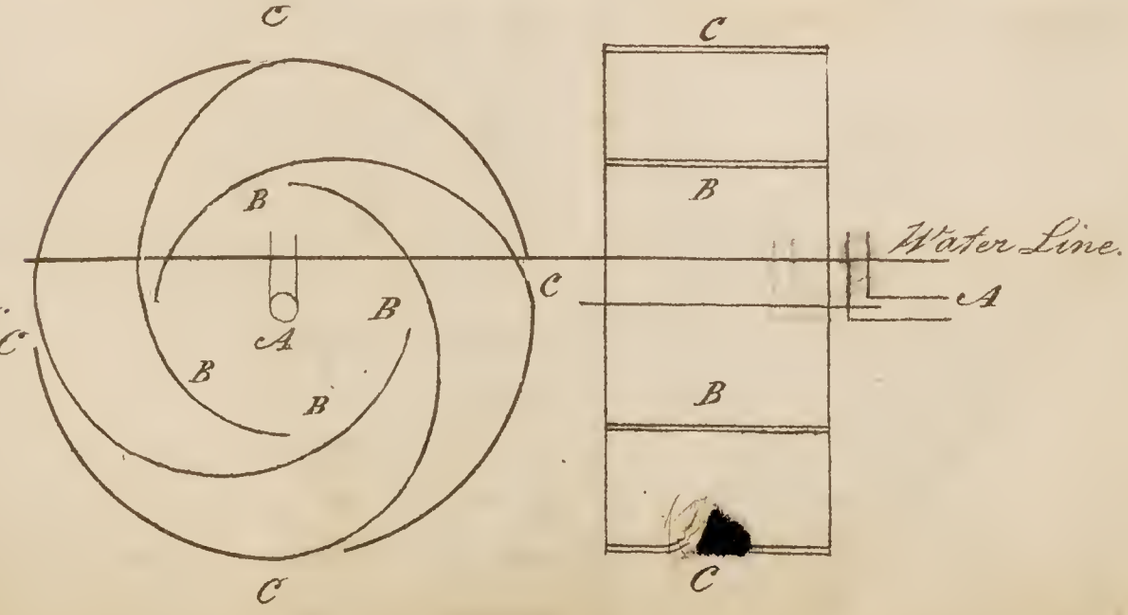

Fig. 4.